REMARKS

This responds to the Office Action mailed on April 29, 2009. Claims 19, 21-32 are amended, claims 50-53 are added, and claims 46-49 are cancelled. As a result, claims 18, 19, 21-36, and 50-53 are now pending in this application.

§103 Rejection of the Claims

Claims 18-24, 26, 28-36 and 46-49 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cookson et al. (U.S. Patent No. 7,167,209) in view of Barton et al. (U.S. Patent No. 6,215,526).

Applicants respectfully submit that the Office Action did not make out a *prima facie* case of obviousness in connection with any of the above rejections because even if combined, the cited references fail to teach or suggest all of the elements of Applicants' claimed invention. The references when combined must teach or suggest all the claim elements[1].

Barton relates to a "[an] analog video tagging and encoding system..."[2] Cookson relates to a method of encoding based on the Veil encoding where encoding is performed by "increasing the average luminance of one line in a field and decreasing the average luminance of the next adjacent line."[3] Cookson describes grouping lines in a field of a video signal together to maintain modulation during "up res'ing" and "down res'ing".[4] Cookson does not teach or suggest altering total luminance of a frame or a field of a frame. Rather, the total luminance of the group, field or frame in Cookson remains constant.

Cookson seeks to "provide a form of VEIL modulation that can be detected even after down res'ing."[5] VEIL Modulation is referred to in Cookson as the "modulation of the video signal used by Broughton, et al" as described in U.S. Patent 4,807,031.[6] In the Broughton patent, the "modulated video fields within the viewing area of a television, each [have] alternately, proportionately raised and lowered luminance horizontal scan lines."[7] The encoding of

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[1] M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

[2] See Abstract.
[3] See Col 1 lines 61-64.
[4] Col 2 lines 12-14.
[5] See Col 2 lines 1-3.
[6] See Col 1 lines 20-40.
[7] See Abstract.

alternately, proportionately raised and lowered luminance horizontal scan lines preserves total luminance of each of the viewing areas. The encoding methods described in Broughton have the "overall luminance" of the video features and the background within the viewing area preserved.[8] Cookson does not depart from Broughton in maintaining the overall luminance, or total luminance, in a group, field or frame.

The figures of the waveforms of Cookson clearly support that there is no alteration to total luminance of a group, field or frame in Cookson.[9] In FIGS. 1-4 of Cookson, each waveform represents a grouping of multiple consecutive horizontal scan lines of a video signal.[10] As is visible in all figures, including FIGS. 3 and 4 which represent the tables of COL 3 and 4, the luminance change to individual scan lines of the multiple consecutive horizontal scan lines does not change the total luminance of the grouping.[11] Although some of the individual horizontal scan lines have a change in luminance, the total luminance of the group remains constant.

The Examiner continues to assert that the tables of FIGS. 3(A) and 3(B) reflect that "the total luminance of the group, field or frame in Cookson does not remain[] constant…." In FIG. 3(A), "the luminance level on each of the lines is controlled by a sinusoidal function with a full period of 8 lines that boosts and reduces the average horizontal luminance by up to 10%."[12] "The gain applied to each line by [the sinusoidal] function is …" 6%, 10%, 9%, 3%, -3%, -9%, -10%, and -6%.[13] By adding the applied gain of 6 + 10 + 9 + 3 + -3 + -9 + -10 + -6, the resulting change in gain over the area of encoding consisting of the eight lines is 0. Thus, FIG. 3(A) reflects no alteration to the total luminance of a particular group, field, or frame.

In FIG. 3(B), the "data is encoded using a sawtooth function to control the chance (sp) in average luminance in each of the N lines."[14] "[T]he gain applied to each line by such a function is …" 2.5%, 5%, 7.5%, 10%, -10%, -7.5%, -5%, and -2.5%. By adding the applied gain of 2.5 + 5 + 7.5 + 10 + -10 + -7.5 + -5 + -2.5, the resulting change in gain over the area of encoding consisting of the eight lines is 0. Thus, FIG. 3(B) reflects no alteration to the total luminance of

[8] See Col 7 lines 30-37.
[9] See FIGS. 1-4.
[10] See Col 2 lines 57-60.
[11] See FIGS. 1-4.
[12] See Col 3 lines 53-56 (emphasis added).
[13] See Col 3 line 60 – Col 4 line 7.
[14] See Col 4 lines 8-12.

a particular group, field, or frame.

The Examiner also continues to assert that the total luminance of Cookson does not remain constant based on disclosure relating to FIG. 6 of Cookson. FIG. 6 of Cookson relates to "a removal device" that may be used to "remove the encoding from a composite video signal".[15] The removal device may be used by "someone attempting to circumvent[] content protection signaling…"[16] Thus, the asserted disclosure relates to removal of encoding as opposed to the claimed methods of producing a modulated video signal from a video signal (e.g., with an encoded signal).

The described method of removing encoding in Cookson is generated by "a waveform that is the inverse of the VEIL encoding scheme."[17] In the described example VEIL encoding scheme, "the average is raised by 10% on the first of two adjacent scans and lowered by 10% on the second of two field adjacent lines."[18] To remove the encoding, the removal device "decrease[s] [the] gain to 0.9 (10% down from unity) for the first line and increase[s] [the] gain to 1.1 (10% up from unity) for the second line."[19] Thus, the first line that originally had its average gain raised by 10% had its average again decreased by 10% from the remove device and the second line that had its average gain lowered by 10% had its gain increased by 10% from the removal dev ice. The result of the application of the removal device in FIG. 6 to an encoded signal is a signal with removed data encoding.[20] As described above, the result is not achieved by changing total luminance of a particular group, field, or frame.

Although Cookson states that the waveform generated by the function generator (28) is fed into a "voltage controlled amplifier that changes the average luminance of the lines being clocked out of the line store delay line" during removal of data encoded into a video signal using VEIL, this feature of Cookson cannot change the average luminance of a frame or field as claimed by the Applicants. This is because Cookson alternates this gain on a *line-by-line* basis rather than a frame or field basis. Because the VEIL encoding scheme of Broughton or Cookson does not change the average luminance of the field or frame, the function of removing that

[15] See Col 2 lines 48-49 and Col 5 lines 15-20.
[16] See Col 5 lines 11-14.
[17] See Col 5 lines 33-35.
[18] See Col 5 lines 37-40.
[19] See Col 5 lines 40-44.
[20] See Col 5 lines 10-12.

alternating line pattern cannot teach or suggest that the average luminance of the fields or frames can also be changed. Moreover, the complex encoding schemes of Cookson cannot change the average luminance on a frame or field basis since all modulations being made by Cookson are periodic and balanced. Accordingly, it must follow that in the case of the removal operation of the VEIL encoding by Cookson that the addition of the "complimentary waveform" to the complex encoding scheme would necessarily cancel out the original encoding, therefore reverting the field/frame back to its original condition, which would also not affect the average luminance of the frame or field. In other words, since all of these luminance changes are conducted in a complimentary way, the average luminance of the field or frame can never change.

Based on the foregoing, Cookson and Barton both fail to teach or suggest:

1. "producing a modulated video signal by raising luminance of a first frame and lowering luminance of a second frame of the plurality of frames in a substantially invisible way, wherein the raising of the luminance of the first frame increases total luminance of the first frame and the lowering of the luminance of the second frame decreases the total luminance of the second frame" of claim 18,
2. "altering intensity of at least two frames of the plurality of frames to encode the digital video signal, wherein the intensity of the at least two frames are each altered by a different intensity amount so that each of the at least two frames has a different total intensity than the other frame" of claim 33,
3. "encoding a signal presence in the digital video signal by increasing luminance of a first frame of the plurality of frames and decreasing luminance of a second frame of the plurality of frames in a substantially invisible way, the first fame and the second frame being consecutive frames of the plurality of frames, wherein the increasing of the luminance of the first frame increases total luminance of the first frame and the decreasing of the luminance of the second frame decreases the total luminance of the second frame" of claim 35, and
4. "produce a modulated video signal by raising luminance of a first frame and lowering luminance of a second frame of the plurality of frames, wherein the raising of the luminance of the first frame increases total luminance of the first

frame and the lowering of the luminance of the second frame decreases the total luminance of the second frame" of claim 46.[21]

Applicants submit that a dependent claim incorporates each of the claim elements of the independent claim from which it properly depends, and more. Applicants assert for the reasons stated above, that neither Cookson nor Barton, alone or in combination, teach or suggest[22] all of the claim elements of dependent claims 19-24, 26, 28-32, 34, 36, and 47.

In conclusion, Applicants reaffirm the position that Cookson and Barton, when combined, do not teach or suggest all of the claim elements of claims 18-24. 26, 28-36, and 46-47 and accordingly respectfully request that the rejection under 35 U.S.C. §103(a) be withdrawn.

Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cookson et al. (U.S. Patent No. 7,167,209) in view of Barton et al. (U.S. Patent No. 6,215,526) as applied to claim 18, and further in view of Schwab et al. (U.S. Patent Application Publication No. 2008/0030614 A1).

Applicants assert for at least the reasons stated in the prior section, that Cookson and Barton do not teach or suggest all of the claim elements of claims 25 and the Office Action's proposed combination with Schwab does not cure the defect. Therefore, Applicants respectfully request withdrawal of the §103(a) rejection and allowance of claim 25.

Claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cookson et al. (U.S. Patent No. 7,167,209) in view of Barton et al. (U.S. Patent No. 6,215,526) as applied to claim 18, and further in view of Barton et al. (U.S. Patent Application Publication No. 2007/0230921) ("Barton II").

Applicants assert for at least the reasons stated in the prior section, that Cookson and Barton do not teach or suggest all of the claim elements of claims 27 and the Office Action's proposed combination with Barton II does not cure the defect. Therefore, Applicants respectfully request withdrawal of the §103(a) rejection and allowance of claim 27.

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[21] See page 34 lines 4-22 and page 35 lines 14-20.

[22] The references when combined must teach or suggest all the claim elements. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

New claims 50-53 have been added. They are believed to distinguish from Cookson and Barton for at least the same reasons as claims 18, 33, and 35. No new matter has been added. [23]

CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' representative at (314) 622-6605 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 501662.

Respectfully submitted,

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[23] *See* Page 13, Lines 11-18, Page 14, Lines 6-11, Page 15, Lines 3-17, Page 32, Lines 11-22, and Page 33, Line 15-Page 35, Line 3.